Met Office

Collaborating
on Data Inter-
operability

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Interoperability

Tools

Opportunities

Collaborating on Data Interoperability

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Data Interoperability

- Supporting data interoperability requires:
    - capable software tools;
    - good quality initial metadata;
    - knowledge of the source and target metadata specification;
    - domain specific mappings between concepts.
- Large scale data and metadata translation is a key use case.

Interoperability Scenarios

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- I have GRIB2 messages and I would like to share CF-netCDF files.

- I have GRIB2 messages which require additional metadata to share effectively as CF-netCDF files.

- I have Met Office Unified Model Fields files and I would like to share CF-netCDF files.

- Publishing specifications as web accessible linked data is a great help in supporting interoperability.
- NERC Vocabulary Server:
  - http://vocab.nerc.ac.uk/
- WMO Codes Server:
  - http://codes.wmo.int/
- Met Office Reference Registry:
  - http://reference.metoffice.gov.uk/

Iris

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- http://scitools.org.uk/iris

- http://github.com/scitools/iris

- Iris:

  - a Python library supporting meteorological and oceanographic data sets;
  - free and open source, with a public development process;
  - developed by the Met Office and various partner organisations.

Iris

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  - a Python library supporting meteorological and oceanographic data sets;
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- Iris provides interoperability capabilities by design.

- Conversion to CF-netCDF is a core capability of the library

- Data payload volumes from modern simulations are vast.
- For some data formats, Iris provides:
    - deferred loading, handling metadata and leaving the data indexed on disk until required;
    - streaming data payloads on save.
- This enables Iris to convert very large data files on modest hardware.

- Iris' load and save functions handle numerous formats, including:
  - WMO GRIB
  - Met Office Unified Model
  - CF-netCDF
- https://127.0.0.1:8888

Sharing Information

- Definitive mappings are a very valuable resource.
- Community engagement is required to handle:
  - the broad scope of tables and names;
  - the specialist expertise required;
  - the discussion of potential misalignment.

Sharing Information

- Definitive mappings are a very valuable resource.
- Community engagement is required to handle:
    - the broad scope of tables and names;
    - the specialist expertise required;
    - the discussion of potential misalignment.
- Phenomenon metadata translation is our current focus.

Metarelate

- http://www.metarelate.net
- An open community project to curate and share metadata translation knowledge
- http://www.metarelate.net/metOcean/
- http://www.metarelate.net/metOcean/search/

Benefiting from Metarelate

- Iris uses metarelate as a source of translation knowledge.

- Knowledge is sourced from the metOcean knowledge base and used to generate source code, which is part of Iris' code base.

- Iris is:
  - metarelate aware at run time;
  - not dependent on metarelate services to run.

- This pattern may be used by other libraries.

Opportunities for Collaboration

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- Questions? Comments? Thoughts?